

BEST AVAILABLE COPY

Listing of Claims

1. (Currently Amended) An idler pulley with an integral bearing carrier insert comprising:
a pulley body having a an outer peripheral surface for accepting and retaining an endless belt, and an inner circumferential surface, said pulley body being manufactured from a moldable polymeric material; and
a tubular bearing carrier insert forming a central hub along a perpendicular axis of said idler pulley for housing a bearing, said insert forming a central hub along a perpendicular axis of said idler pulley body, said hub having an inner circumferential surface and an outer circumferential surface, wherein said outer circumferential surface of said insert is coated with brass or zinc to fixedly adhere said tubular bearing carrier insert to said pulley body to said inner circumferential surface of said pulley body, said tubular bearing carrier insert being manufactured from a rigid material.
2. (Canceled)
3. (Currently Amended) The idler pulley of claim 2 1 wherein said moldable polymeric material is selected from the group consisting of a polyamide, phenolic resin, epoxy resin, polyester, polyurethane, high density polyolefin, or a blend and blends thereof.
4. (Currently Amended) The idler pulley of claim 3 wherein said polymeric material is selected from the group consisting of a polyamide or and a polyphthalamide.
5. (Original) The idler pulley of claim 4 wherein said polymeric material is a polyamide.
6. (Currently Amended) The idler pulley of claim 4 5 wherein said polyamide is a nylon selected from the group consisting of nylon-6; nylon 6,6; nylon 4,6; nylon 6,10; nylon 9; nylon 11; or and nylon 12.
7. (Currently Amended) The idler pulley of claim 6 wherein said nylon is one of nylon 6, nylon 6,6 or and nylon 4,6.
8. (Currently Amended) The idler pulley of claim 2 1 wherein said moldable material further includes at least one of a modifier selected from the group consisting of polytetrafluoroethylene, ultra high molecular weight polyethylene, silicone, molybdenum disulfide, graphite and rubber, a

BEST AVAILABLE COPY

filler selected from the group consisting of glass beads, carbon black, calcium carbonate, wollastonite, mica, clay and talc; a reinforcing agent selected from the group consisting of glass fiber, long glass fiber, aramid fiber, steel fiber and carbon fiber; and an adhesion promoter selected from the group consisting of sulfur, silica, acrylates, vinyl acetates and low molecular weight polyamide.

9-12 (Canceled)

13. (Original) The idler pulley of claim 2 1 wherein said outer circumferential surface of said pulley body is coated with a metallic coating.

14. (Currently Amended) The idler pulley of claim 13 wherein said ~~metal~~ metallic coating is steel or aluminum.

15. (Currently Amended) The idler pulley of claim 1 wherein said tubular bearing carrier insert is manufactured from a metal or ceramic material.

16. (Currently Amended) The idler pulley of claim 15 wherein said tubular bearing carrier insert is manufactured from a metal selected from the group consisting of steel, aluminum, zinc, brass or and a combination thereof.

17. (Original) The idler pulley of claim 16 wherein said tubular bearing carrier insert is manufactured from steel.

18. (Canceled)

19. (Original) The idler pulley of claim 1 further including a bearing member having an outer bearing race surface fitted within said central hub such that said outer race surface of said bearing member is circumferentially adjacent the inner circumferential surface of said hub.

20. (Original) The idler pulley of claim 19 wherein said central hub includes locating means for locating said bearing member during assembly.

21. (Original) The idler pulley of claim 20 wherein said locating means is one of a stepped profile or detents.

BEST AVAILABLE COPY

22. (Currently Amended) The idler pulley of claim 1 wherein said outer circumferential surface of said tubular bearing carrier insert shell member further includes means is knurled, splined or contains holes to provide a rough surface to enhance interlocking for enhancing interlock between said tubular bearing carrier shell insert and said pulley main body.

23. (Currently Amended) An idler pulley assembly with an integral bearing carrier insert comprising:

a moldable polymeric pulley body having an outer circumferential surface and an inner circumferential surface, wherein said outer circumferential surface is adapted to accept and retain for accepting and retaining an endless belt, said pulley body being manufactured from a moldable polymeric material containing an adhesion promoter selected from the group consisting of sulfur, silica, acrylates, vinyl acetates and low molecular weight polyamide;

a tubular metal or ceramic bearing carrier insert forming a central hub along a perpendicular axis of said pulley body for housing a bearing, said hub insert having an outer circumferential surface, wherein said outer circumferential surface of said insert is coated with brass or zinc to fixedly adhere said tubular metal bearing insert to said pulley body an adhesion promoter selected from the group consisting of sulfur, silica, acrylates, vinyl acetates and low molecular weight polyamide fixedly secured to said inner surface of said pulley body, and having an inner circumferential surface provided with one or more bearing member locating means selected from the group consisting of stepped profile and detents; and

a bearing member having an outer bearing race surface, said bearing member fitted within said hub such that said outer race surface of said bearing member is circumferentially adjacent the inner circumferential surface of said hub.

24. (Withdrawn) A method for manufacturing a moldable polymeric idler pulley having an integrally formed metal or ceramic bearing insert comprising the steps of:

(a) providing a mold having a cavity, the inner surface of said cavity being shaped to form an outer surface of a pulley body having a desired configuration and dimension;

(b) inserting a tubular metal bearing carrier insert having an outer circumferential surface and an inner circumferential surface defining an open interior space for accepting a bearing member, within said cavity, said insert configured to provide a hub along a perpendicular axis of a pulley body formed in said mold, said outer circumferential surface of said insert having an outer surface shaped to enhance interlocking between said hub and said pulley body and said hub further including a stepped profile or detents to locate said bearing member;

BEST AVAILABLE COPY

(c) closing said mold;

(d) introducing a free-flowing moldable polymeric material into said cavity such that said free-flowing moldable polymeric material fills said cavity around said outer circumferential surface of said insert leaving said open interior space of said insert free of said free-flowing moldable polymeric material;

(e) subjecting said mold containing said free-flowing material and said tubular metal bearing carrier insert to conditions of heat and pressure to form an idler pulley with an integral bearing carrier insert;

(f) cooling said mold to provide a molded idler pulley with integral bearing carrier insert formed along a perpendicular axis of said idler pulley body;

(g) opening said mold; and

(h) recovering said molded idler pulley with integral bearing carrier insert.

25. (Withdrawn) The method of claim 24 wherein step (b) further includes inserting a bearing member in said open interior space.

26. (Withdrawn) The method of claim 2 further including step (i) inserting a bearing member into said open interior space.

27. (New) The idler pulley assembly of claim 23 wherein said moldable polymeric pulley body is formed from a polyamide selected from the group consisting of nylon-6; nylon 6,6; nylon 4,6; nylon 6,10; nylon 9; nylon 11; and nylon 12.

28. (New) The idler pulley assembly of claim 23 wherein said tubular metal bearing carrier insert is formed from steel.

29. (New) The idler pulley of claim 28 wherein said steel tubular bearing carrier insert is coated with zinc or brass.

30. (New) The idler pulley of claim 23 further including a bearing member having an outer bearing race surface fitted within said central hub such that said outer race surface of said bearing member is circumferentially adjacent the inner circumferential surface of said hub, wherein said central hub includes locating means selected from the group consisting of a stepped profile and detents for locating said bearing member during assembly and, wherein said outer circumferential surface of said tubular shell member is knurled, splined or contains holes to

BEST AVAILABLE COPY

provide a rough surface for enhancing interlock between said tubular shell insert and said pulley body.

31. (New) The idler pulley of claim 23 wherein said moldable polymeric material further includes at least one of a modifier selected from the group consisting of polytetrafluoroethylene, ultra high molecular weight polyethylene, silicone, molybdenum disulfide, graphite and rubber; a filler selected from the group consisting of glass beads, carbon black, calcium carbonate, wollastonite, mica, clay and talc; a reinforcing agent selected from the group consisting of glass fiber, long glass fiber, aramid fiber, steel fiber and carbon fiber; and an adhesion promoter selected from the group consisting of sulfur, silica, acrylates, vinyl acetates and low molecular weight polyamide.